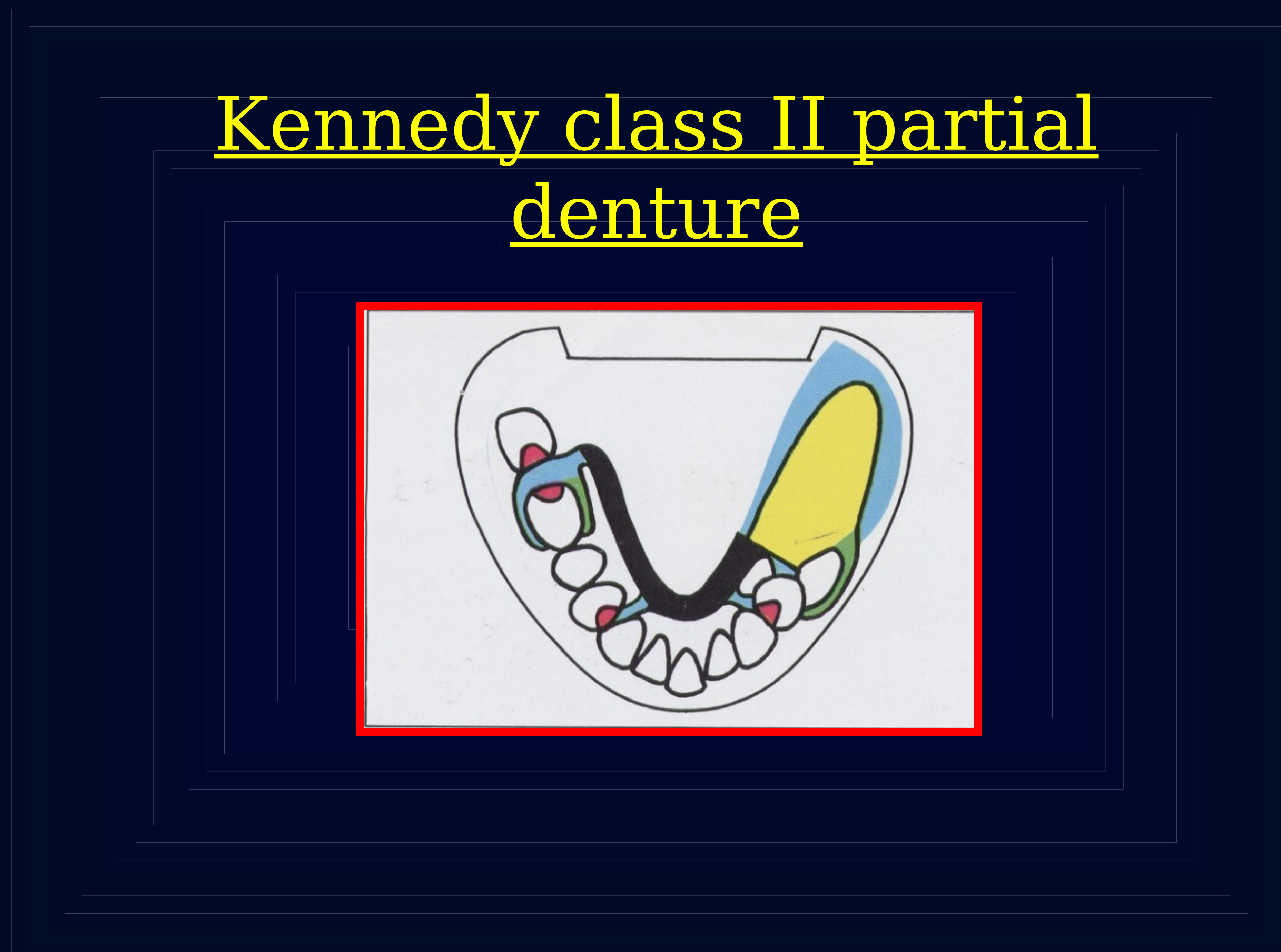
Kennedy class II partial denture



Problems associated with a unilateral free-end:

- **1-There is a lack of posterior support and retention (like class I).**
- **2-The absence of a saddle on the other side complicates the retention of the appliance.**

So, Problems of unilateral distal-extension bases can be reduced by:

A- Load reduction and distribution.

B- Provision of adequate support.

E- Providing posterior abutment using an implant at the posterior part of the ridge and construction of implant supported over denture.

C- Using an indirect retainer to counteract rotation of the denture in an occlusal direction.

D- Providing adequate retention on the dentulous side by using rigid clasping or multiple clasping on the intact side.

I- Designing of class II partial dentures with no modifications

:**Direct retention** is obtained by

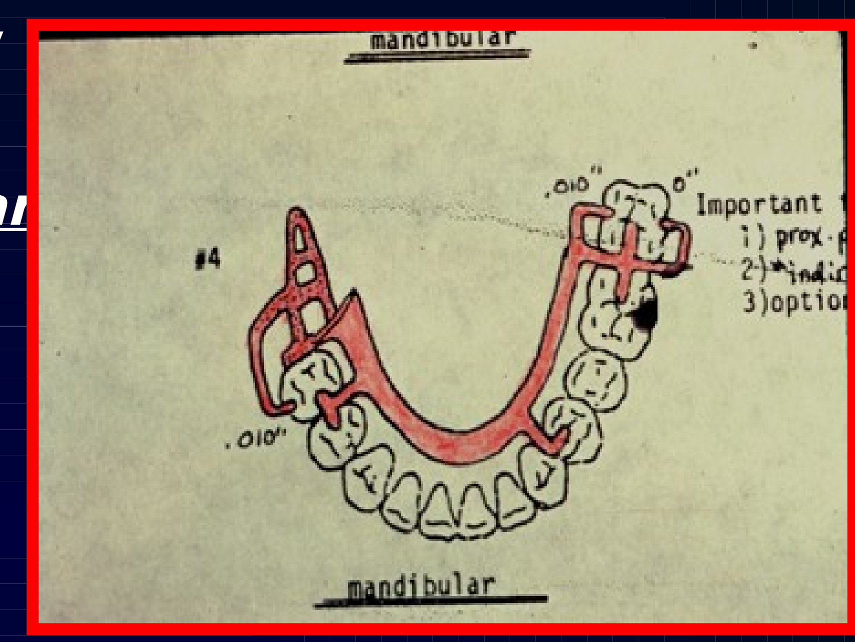
Rigid clasping and rigid-1 connection between the saddle an the retainer
short span, strong abutment,)
.(healthy periodontium & mucosa

2-Designs applying stress equalizing principles

(*in long span as RPI, RPA, Reverse Aker, Combination clasp).*

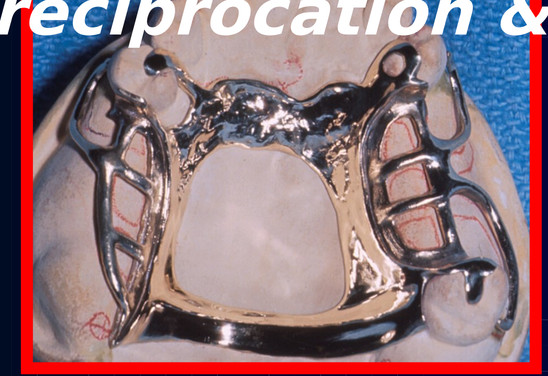
A double Aker clasp is usually used on the dentulous side.

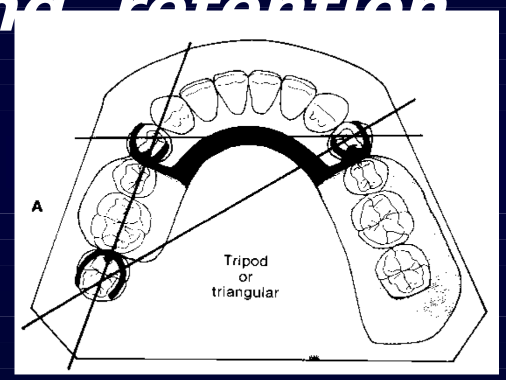
An indirect retainer should be provided to counteract rotation of the denture away from the tissues



II- Designing of class II partial dentures with modification spaces

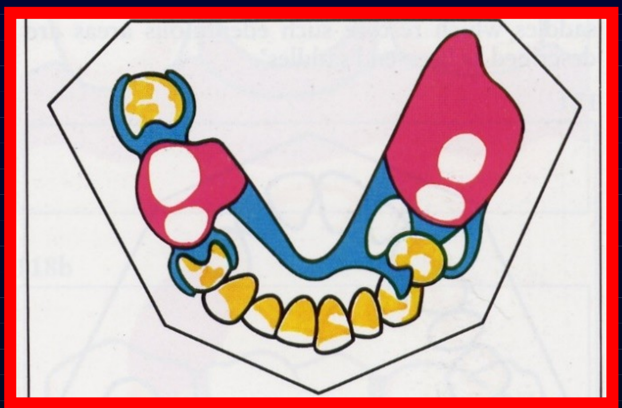
- Simpler design Retention solved by presence of saddle in mod. Area + clasps on abut. bounding mod. area provide retention, bracing, reciprocation & ind. retention



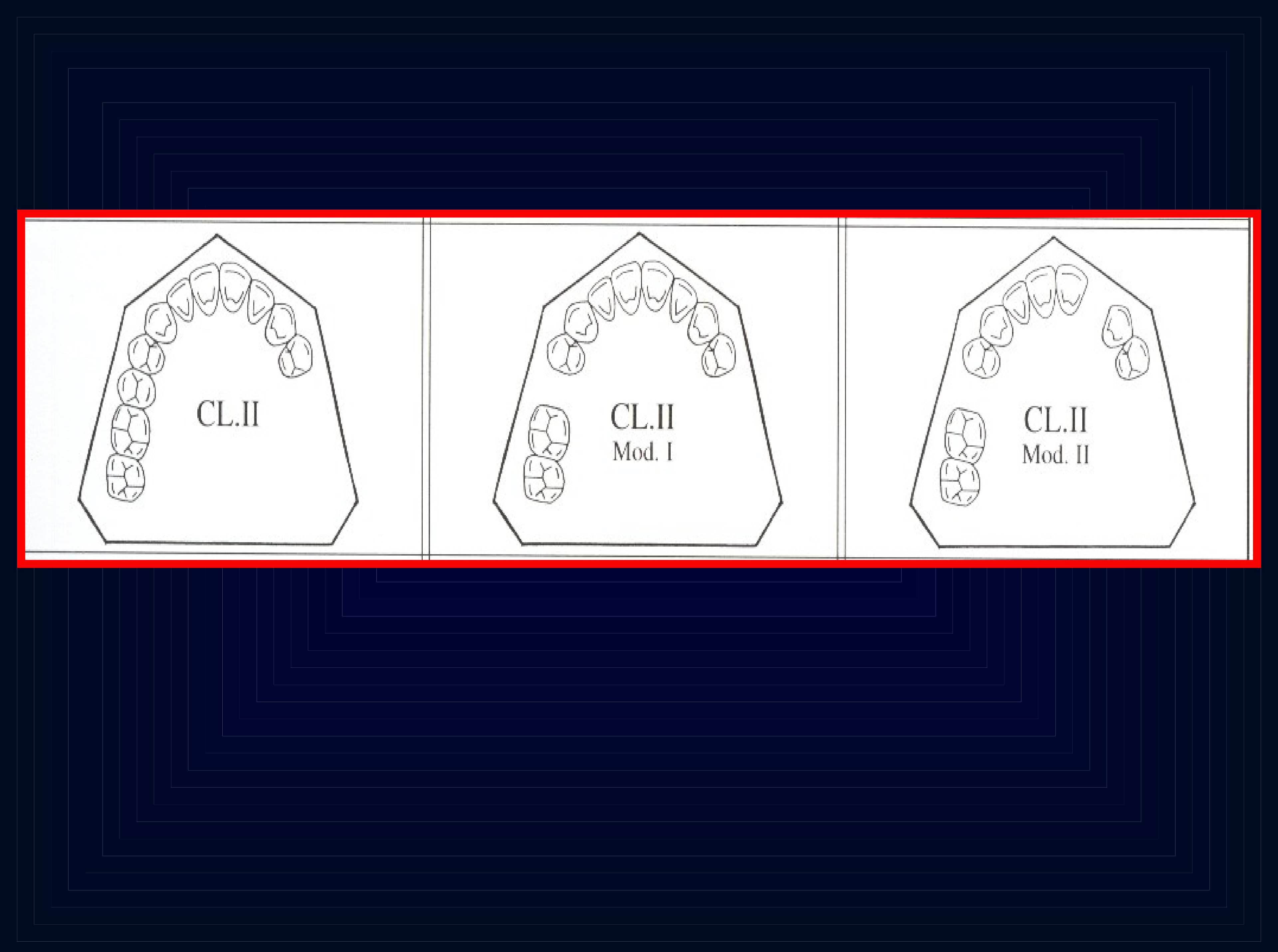











CL.II
CL.II
Mod. I
CL.II
Mod. II

Kennedy class III partial dentures

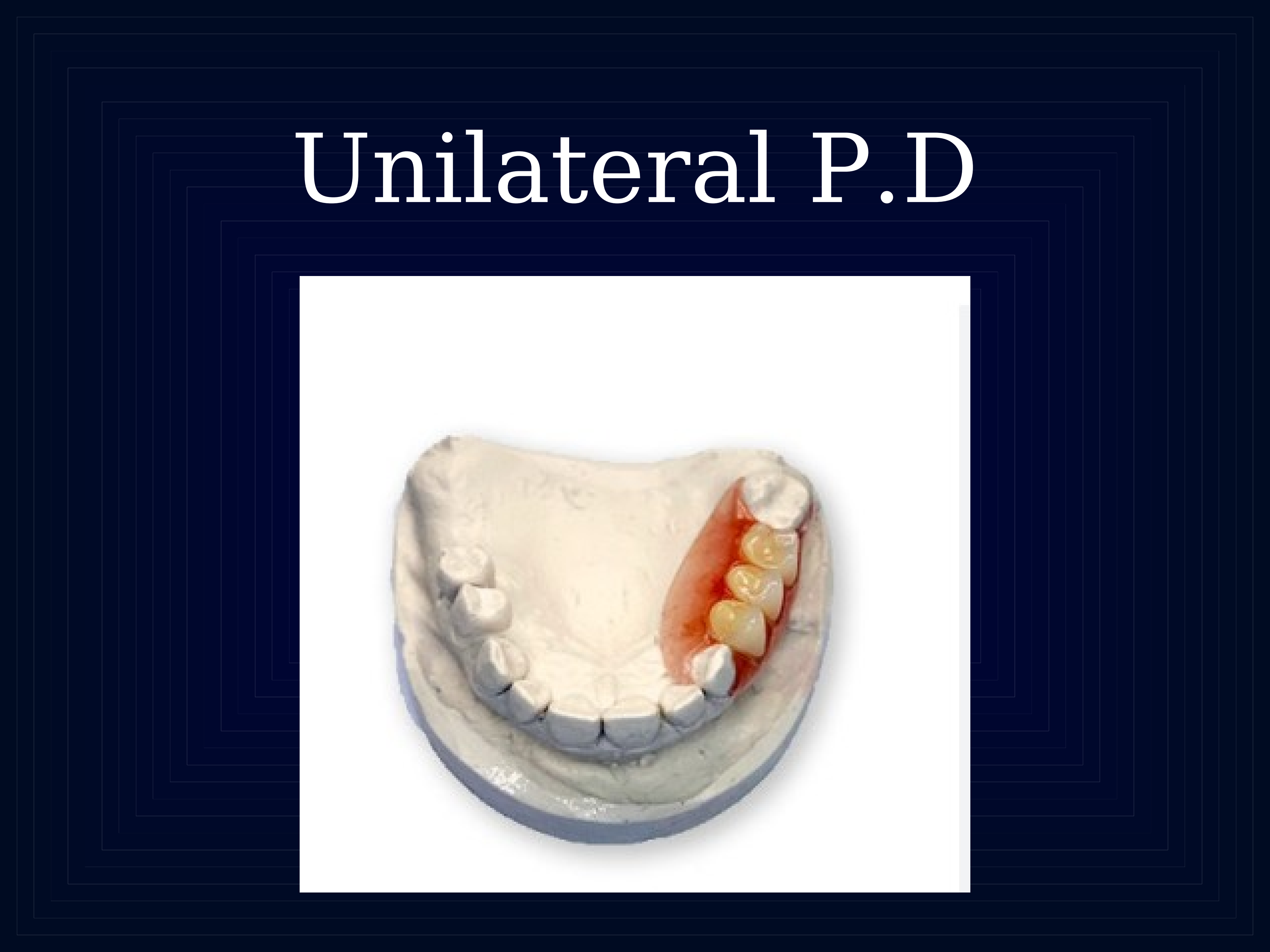
Problems associated with the unilateral bounded cases

- **Restoration of unmodified class III may be through using fixed bridge, unilateral partial denture or bilateral partial denture.**

- **Many patients neglect restoration of a bounded unilateral short span using a partial denture.**

Unilateral prosthesis

- **Unilateral partial dentures are called “side plates” or “removable bridge”. They are constructed to restore one side of the arch and not extended to the opposite side.**
- **Unilateral partial dentures lack adequate retention and stability, permit limited load distribution and not safe to use due to the probability of being inhaled or swallowed. So it is not advised to be used.**


Unilateral P.D



a)Providing working side contact on both buccal and lingual cusps.

b)Maximum extension of the occlusal rest especially to the buccal side.

d) Providing adequate retention against both vertical displacement and buccal displacement.

c) Providing adequate bracing against lateral movement especially buccal movement. This can be achieved by:

- Extending the denture base on the vertical slope of the hard palate.
- Bracing arms located on the abutment tooth and the tooth adjacent to it.
- Clasping adjacent teeth to allow wider load distribution.
- Using box-shaped rest seat preparations to supplement bracing.

Contra indications of unilateral partial dentures:

- Patients employing **excessive lateral movement** during mastication.
- Patients exhibiting **bruxism**.
- **Conical shaped abutment teeth**, weak teeth or teeth having short crowns that cannot provide adequate retention and bracing.
- In **old age patients**.

Design for Class III partial denture

- **Tooth supported partial denture is relatively easy to design.**
- **The only requirement is a good impression of the teeth and ridges.**
- **It is not necessary to have indirect retainers.**
- **Although there are fulcrum lines, the amount of rotation is slight.**
- **There is no need for flexible clasps, any clasp will furnish retention will be sufficient.**
- **A circumferential clasp or a bar clasp can be utilized.**

- A combination clasp could also be used, but would not be practical unless a free standing posterior abutment tooth was questionable.

- Selection of the clasp will depend upon the location of the retentive areas, relation of the clasp to the gingival margin and esthetics.

- Cast circumferential (Aker) clasps are most often used, especially on posterior teeth.

- Bar clasps can be used by choice, or required by the location of undercut and esthetics.

:I- Design for support

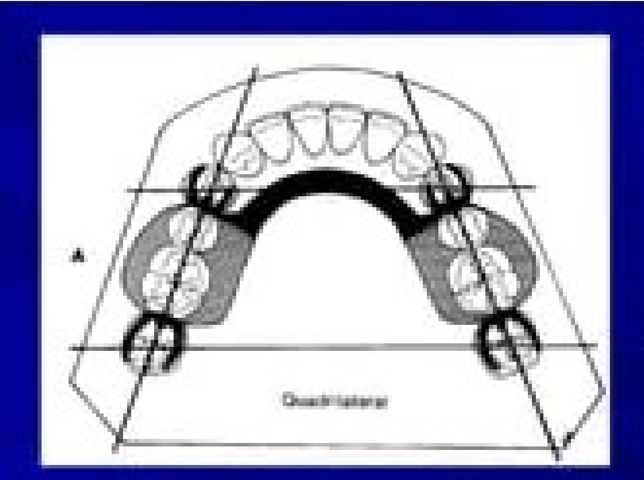
Class III base is tooth supported
:metal base can be used except in

- Recent extraction.
- Young patients.
- Diabetic patients.
- Long bounded span.

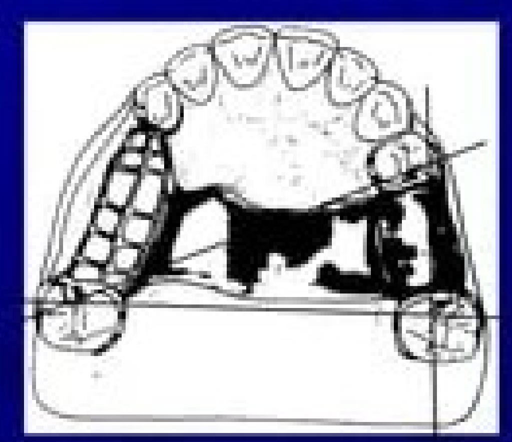


:II- Design for retention

- Rigid clasps are used on the abutment bounding the edentulous span.
- A third clasp is used on the opposite side. When a modification is present on the other side the tripod clasp configuration is used.
- However, 2 supporting rests should be used on each ab … s.



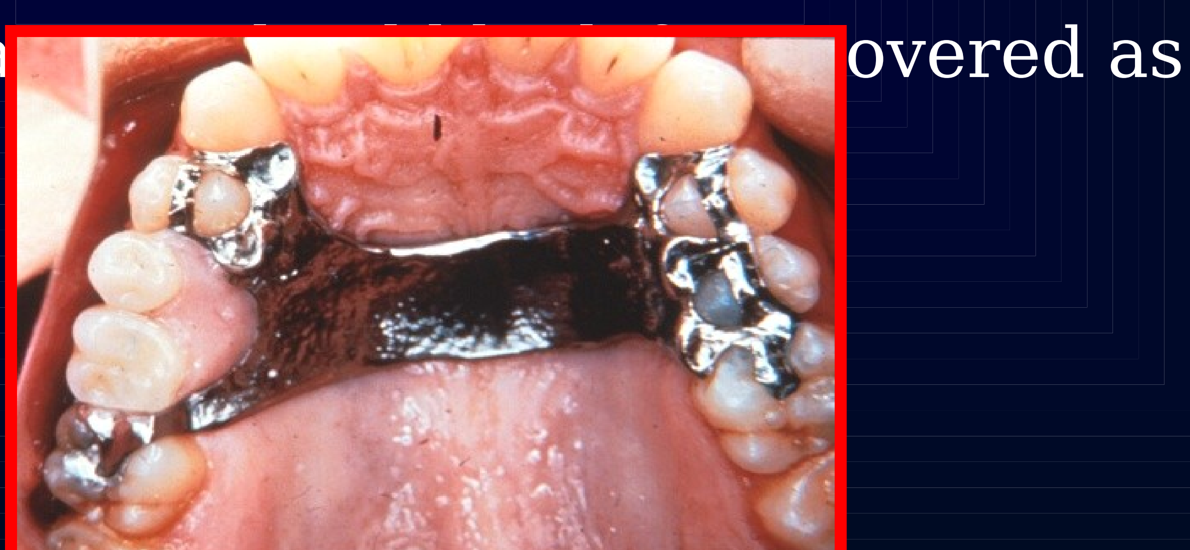
The quadrilateral clasp configuration for class III partial denture



The tripod clasp configuration for class III partial denture

III- Design for connection

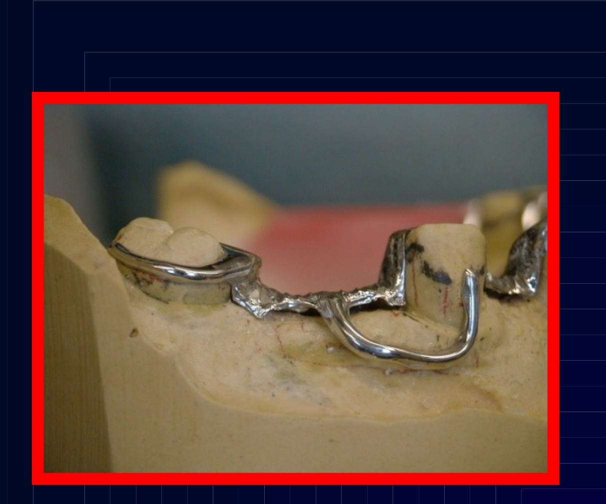
- Lingual bar is used usually for the lower, while palatal strap is the selection for the upper class III partial dentures.
- A lingual bar is selected if the lingual vestibule has adequate depth.
- If there is no sufficient depth or if the teeth need splinting lingual plate is the choice.
- Gingival ma overed as possible.

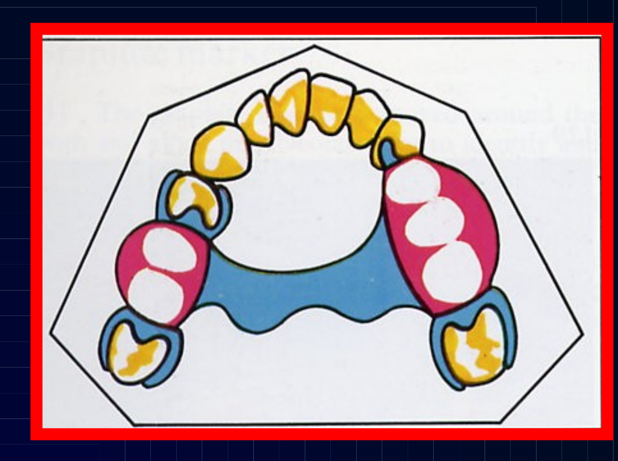
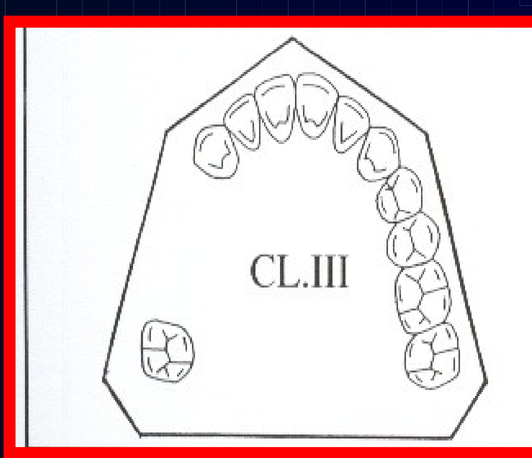
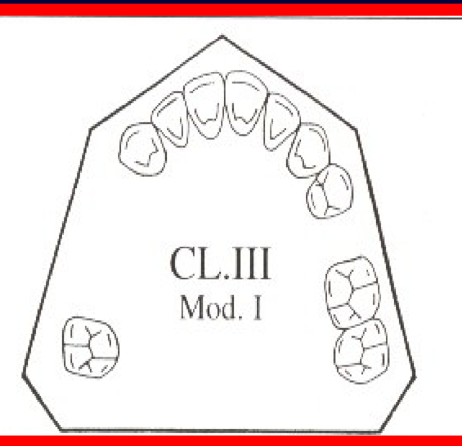
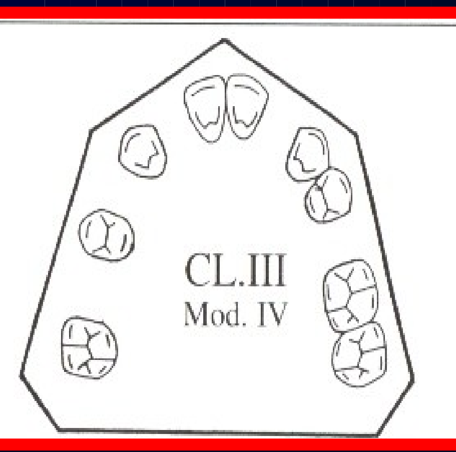


IV- Design for indirect retention

class III with modification is considered self indirect retention through the rests used on both sides of the .modification area

In class III partial denture with no modifications the arch must be crossed in order to provide .stabilization of the design





CL.III

CL.III
Mod. I

CL.III
Mod. IV

Every's denture

(Used to restore upper multiple bounded saddle areas)

1.All borders 3 mm away from gingival margins.

2. Broad area coverage to resist vertical load.

3.Palatal tissues & posterior teeth resist lateral load.

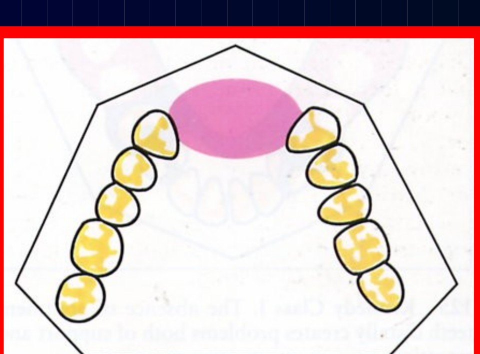
4.Posterior wire "stop" to prevent distal drift & subsequent loss of contacts.

5.Point contact bet. Abut. & artificial teeth + Balanced occ. to reduce lateral stresses.



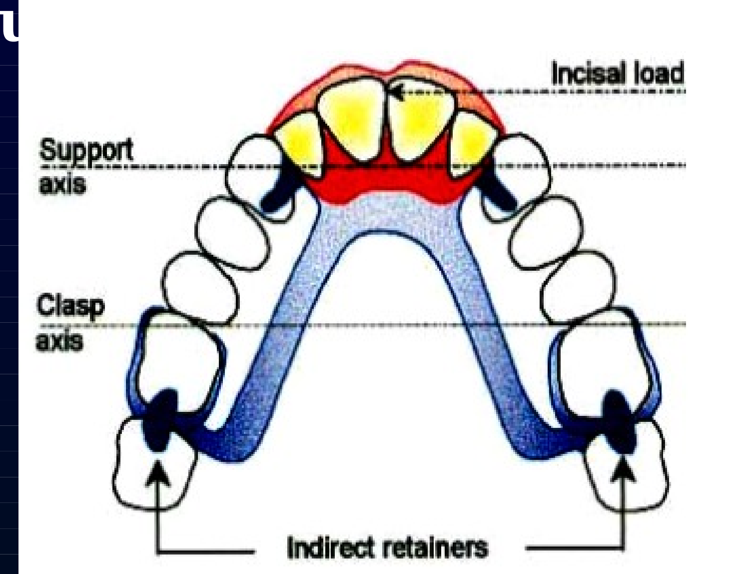
Problems of class IV

- **Class IV has a single, but bilateral (crossing the midline), edentulous area located anterior to the remaining natural teeth.**
- **There can be as little as two central incisors missing or even al the teeth missing anterior to the third molars.**
- **If possible anterior modification space should be replaced with a fixed prosthesis .But this is not possible because of the number of missing teeth or financial constraints.**

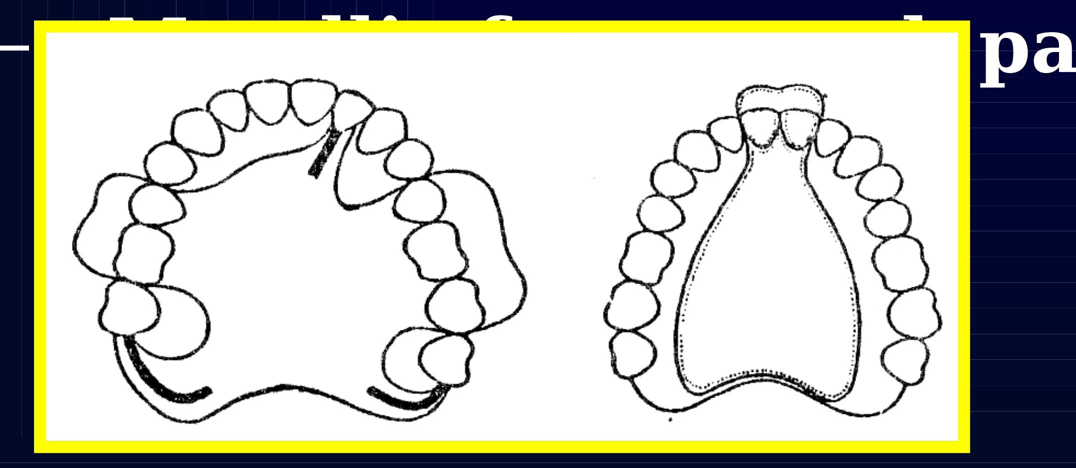


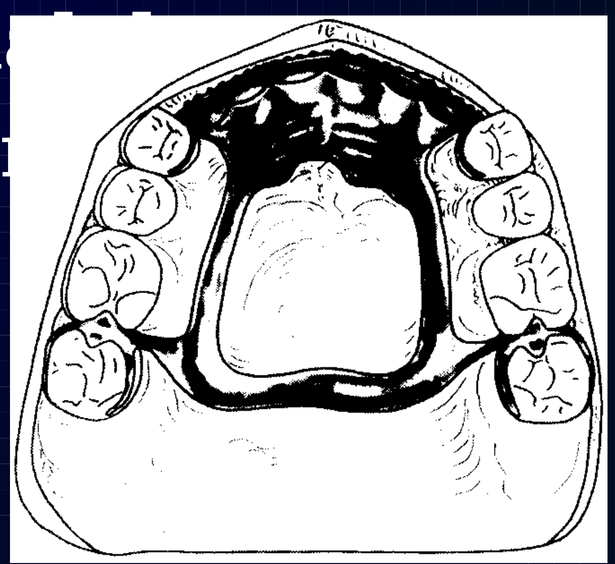
- Class IV partial denture (especially with a long span) is considered a free-end partial denture, because they lack anterior abutment (tissue-supported anteriorly) and teeth are present posterior to the edentulous span. This leads to rotation of the P.D. around a fulcrum axis formed by the line joining the supporting rests. This rotation induces torque on the abutments.

- Class IV may occur to any age even in children and adolescents, because upper anterior teeth are subjected to trau



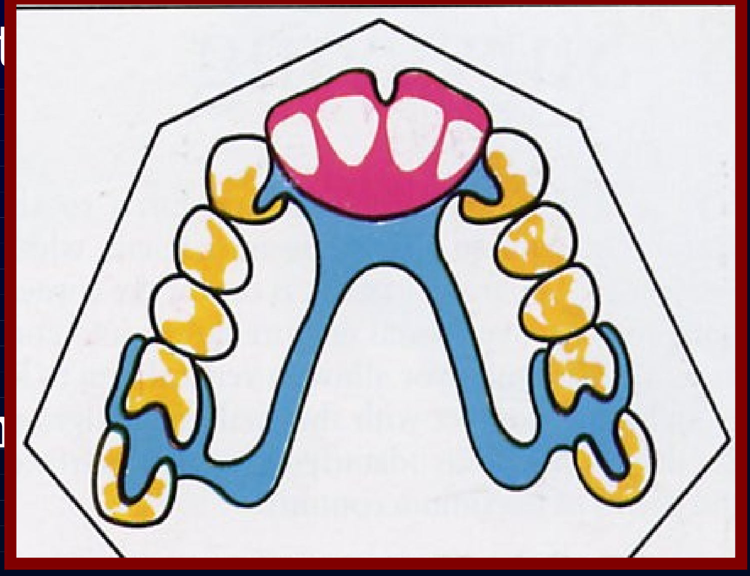
- ***Line of treatments in class IV may be:***
  - **Fixed bridge (preferable)**
  - **Spoon denture (mucosa-borne acrylic p.d., temporary for children and young adults).**
  - **Acrylic temporary partia**
  - **par**



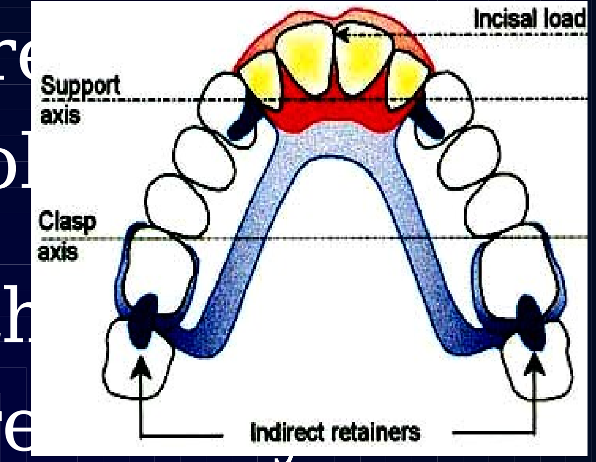


1-Design for support

- A combination of metal and acrylic base is indicated because it is considered tooth-tissue supported partial denture and future relining is expected.
- Sufficient support should be applied through rests on the abutments adjacent to the edentulous span.
- The rests on the adjacent abutments act as a fulcrum, so posterior retention should be sufficient to resist rotational movements, especially for ovoid or tapered arch.
- Cingulum rests or Occlusal rests are used on both sides of the edentulous area.
- Incisal rests are avoided as much as possible for esthetic reasons, and to avoid stresses on weak teeth.



Design for retention -2



- **Multiple clasps** (or embrasure are used on the last standing mol
- The more posteriorly located th the more retention and the more distributed the stresses and torque action.
- Posterior retention resists rota around the anterior fulcrum line

3- Design for connection

- **In case of class IV for short span** major connection is in the form of two palate bars arising from the saddles and extending posteriorly on the lateral walls of the palate, equidistant between the gingival margin and the midline of the palate. The distal ends of the two bars are attached to the posteriorly located clasps.
- Lingual bar connector is used in mandibular dentures.
- A horseshoe major connector may be used.

Its disadvantage is its lack of rigidity wh

is avoided by extending it distally.

- **In class IV for long span:** The two

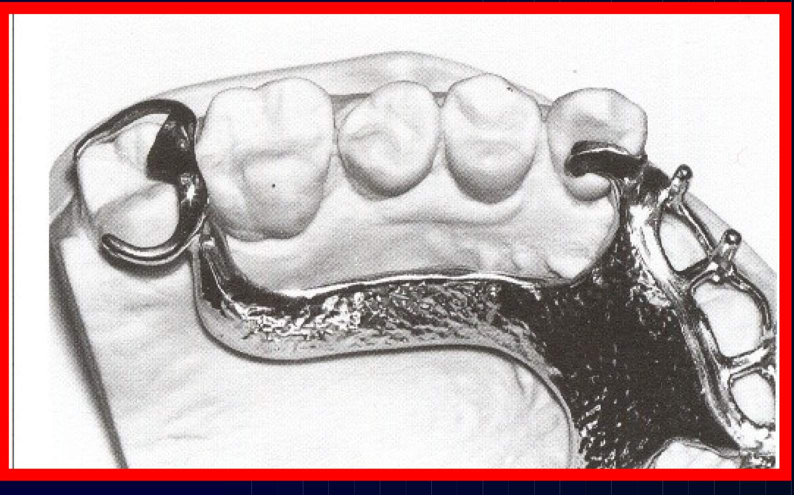
bars give flexibility to the major connec

(not required).So, Palatal strap or

anteroposterior palatal bars are used.

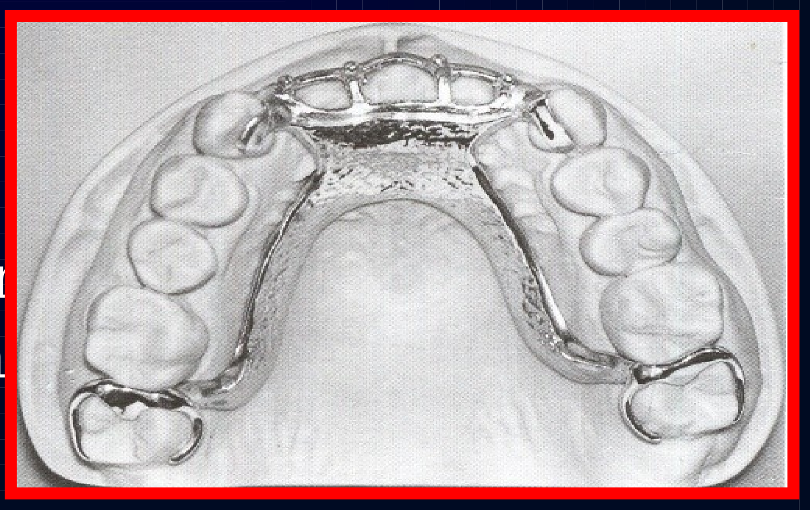
4- Design for Indirect Retention

Indirect retention to counteract ro
around the fulcrum axis is obtaine
rests on the posterior teeth (tooth
support) and by extending the pal
strap major connector posterior to
fulcrum axis (mucosal support)



Mucosal support indirect retainer
.limited to the upper denture

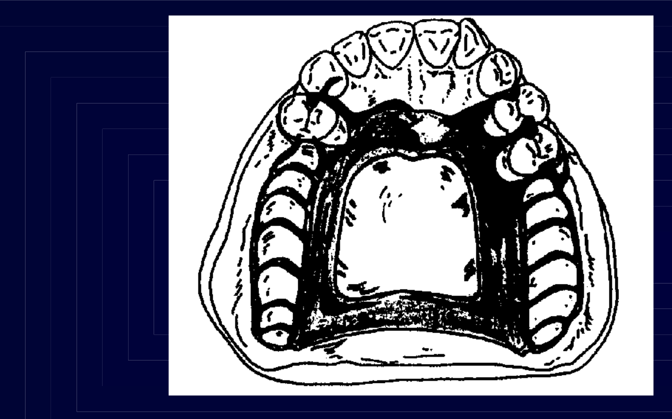
Occlusal rests are applied to the r
far occlusal surface as possible an
.both sides of the arch




THANK
YOU

How to answer question of RPD design???

1- Drawing of the case with labeled components:



2- classifying of the case.

3- Problems of this case.

How to answer question of RPD design???

4- Selecting components for designing:

a-Design for support: denture base, rest and maxillary major connector

b- Design for retention: direct and indirect retention.

c- Design for connection: major and minor connection.

d- Design for bracing and stability.

e- Design for reciprocation.

f- Artificial teeth and occlusion.